CLASS SPECIFICATION

TITLE	GRADE	EEO-4	CODE
ENGINEERING TECHNICIAN V	**35**	**C**	**6.305**
ENGINEERING TECHNICIAN IV	**33**	**C**	**6.308**
ENGINEERING TECHNICIAN III	**30**	**C**	**6.313**
ENGINEERING TECHNICIAN II	**27**	**C**	**6.328**
ENGINEERING TECHNICIAN I	**23**	**C**	**6.334**

SERIES CONCEPT

Engineering Technician positions perform a broad range of duties involving technical engineering work in support of professional engineers. Duties include but are not limited to, drafting, engineering calculations, surveying, materials/soils testing, construction inspection, roadway design, right-of-way engineering, planning, permitting and inspection, water rights appropriation and land acquisition in support of civil or related professional engineering work. Duties require the application of technical engineering skills, methods, and practices in compiling technical data, drafting, computers, computer aided software, operating specialized equipment, and preparing engineering related documents.

Assist engineers in performing field and laboratory tests and setting up equipment; gather and compile data, analyze technical problems, conduct research and analyze data gathered to ensure accuracy and conformance to policies, procedures, guidelines and standards.

Assist engineers, contractors, department staff, other agencies, the general public and private business regarding water right ownership, bid documents, contract plans, right-of-way plans, acquisition and disposal documentation, contract specifications, test results and State and federal guidelines and procedures; review, prioritize, research and prepare information in appropriate format.

Perform technical research to ensure department programs, testing methods, policies and procedures comply with State and federal requirements; review technical documents, analyze and interpret data and note discrepancies; verify areas of noncompliance against agency records and contact appropriate parties when discrepancies arise; make recommendations to correct problems and/or revise existing policies, procedures or methods.

Maintain records and contract documents in accordance with established filing system; enter data into computer system for analysis and review construction, water rights and contract documents, and/or plan specifications; check applications and technical reports for completeness, clarity, and conformance to department guidelines and State and federal policies and procedures.

Perform field inspections of construction projects, well locations and water use, material equipment, property lines and boundaries, right-of-way mapping and safety barriers; review and interpret construction plans, water rights records of survey and specifications to determine compliance; perform field measurements and record data; provide information, discuss problems and recommend solutions to contractors, professionals, property owners, department personnel, and the general public; make recommendations and document the inspection process for future reference, payment of contract billings, and to meet State and federal requirements.

SERIES CONCEPT (cont'd)

Perform manual and computer aided drafting assignments by preparing maps, charts, graphs, tables, slopes and contours for construction projects, right-of-way location, and water rights ownership, water rights data, data analysis, and State, federal and private property location.

Conduct surveying work including staking alignments, structures, fence lines and cross sections to set control points, locate wells, and establish right-of-way lines, government survey, and property boundaries; perform vertical and horizontal measurements and perform topographical mapping by operating transits, levels, rods, computerized surveying equipment, compass, and calculators.

Perform material and soil testing in a laboratory setting involving a variety of design and quality control testing including acceptance testing, design mix, proficiency and advance testing; research material properties, new or proposed specifications and test procedures.

Maintain and calibrate equipment to ensure proper operation, accuracy and reliability of test results and data collection; maintain equipment inventory, repair and maintenance records; document calibration results, repairs and problems encountered and make recommendations for repair and/or replacement of existing equipment.

Research city, county and federal records to determine property ownership, boundaries, encumbrances and condition of title.

Perform calculations establishing government survey and property boundaries, right-of-way lines, slopes and contours, horizontal and vertical alignments, traverses, construction limits and material quantities.

Perform related duties as assigned.

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CLASS CONCEPTS

Engineering Technician V: Under general direction of an engineer or section head, incumbents perform the full range of duties in the series concept and in addition, function as a first-line supervisor directing and reviewing the work of lower level engineering technicians and oversee an engineering function or operation of considerable importance to the agency. This level of work involves independent decision-making and accountability for the accuracy of the final work products of subordinates.

Projects are assigned in terms of general program goals and are not specified in detail, and completed work is reviewed by an engineer or section head for conformance with engineering principles and practices, applicable policies and procedures as well as State and federal requirements. Incumbents oversee major projects and exercise functional supervision over engineering related programs; apply concepts, theories, and practices utilizing considerable judgment and ingenuity in carrying out assignments.

The scope of work includes the supervision and coordination of technical engineering work such as cost estimation, material/soil analysis, quality assurance testing and sampling, water rights ownership determination, field investigations, interpretation of legal documents and descriptions, construction inspection activities, other critical inspections, data analysis, permitting, right-of-way engineering duties, and water rights and land acquisitions.

CLASS CONCEPTS (cont'd)

Engineering Technician V: (cont'd)
Incumbents supervise lower level engineering technicians or personnel assigned to specific projects or functions and ensure the quality and quantity of work assigned to a squad or section; establish work performance standards; evaluate employee performance; assign and review work; make recommendations in the hiring, firing and disciplinary actions of assigned employees; and determine work priorities, procedures and techniques within existing standards and controls.

Engineering Technician IV: Under general direction, incumbents function independently at the advanced journey level performing technical work requiring knowledge of engineering theories, principles, concepts and practices in a specialized area.

Incumbents plan and execute assignments and independently coordinate projects with other technicians. Work assignments cover a wide range of technical engineering duties requiring considerable judgment and ingenuity. Incumbents determine individual work priorities and apply established procedures, techniques, standards and guidelines set forth by management.

Positions assigned to this class perform specialized technical engineering work of an advanced nature and function under minimal supervision; use considerable judgment in making independent decisions; may act as a first-line supervisor and have technical or leadworker responsibility for a project and staff of lower level engineering technicians.

Engineering Technician III: Under general supervision incumbents perform one or more of the duties described in the series concept at the journey level, perform technical engineering work by applying a variety of methods and practices in compiling technical data, using computer aided software, operating specialized equipment and preparing technical engineering documents. They are accountable for the accuracy of the final work product and the correct application and interpretation of office policy and statutory requirements, testing procedures, completed construction work, design plans, engineering data, cost estimates and survey results.

The scope of work includes technical engineering work such as, cost estimating, material/soil analysis, quality assurance testing and sampling, construction inspection activities, data gathering and research, surveying, drafting, right-of-way engineering duties, relocation inspections, review of legal transfer documents, water rights ownership and land acquisition research.

Incumbents assist in training lower level staff as assigned

Engineering technician work at this level is not completely standardized requiring the incumbent to use a variety of references, guidelines and precedents that may require making modifications in work procedures, data and equipment; apply judgment and knowledge in selecting and evaluating data and adapting methods to accomplish work assignment; contributions are made to the actual design development phase of an engineering function.

Engineering Technician II: Under general supervision, incumbents continue to receive training in technical engineering methods and practices.

Work includes basic elements of engineering work such as, cost estimating, material and soil analysis, construction planning and inspections, data interpretation, permit preparation, technical report preparation, proofreading, survey work, drafting, and research of department, county, city and federal records. Duties involve testing, measurement, calculations, data collection and analysis by applying technical engineering

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CLASS CONCEPTS (cont'd)

Engineering Technician II: (cont'd)
practices and concepts, and incumbents exercise limited judgment when applying guidelines and specifications regarding the course of action to accomplish assignments. The knowledge, skills and abilities acquired at the Engineering Technician II level are intended to provide for progression to the journey level and in preparation for performing more specialized and technical engineering related work.

Engineering Technician I: Under close supervision of a higher-level technician or engineer, incumbents learn to perform technical engineering tasks at the entry level. Progression to the next level may occur upon meeting minimum qualifications and with the recommendation of the appointing authority.

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MINIMUM QUALIFICATIONS

SPECIAL NOTES AND REQUIREMENTS:

* Some positions require a valid driver's license at the time of appointment and as a condition of employment.
* Some positions require specialized education, experience and/or certification which will be identified at the time of recruitment.
* Pursuant to NRS 284.4066, some positions in this series have been identified as affecting public safety. Persons offered employment in these positions must submit to a pre-employment screening for controlled substances. In addition, federal law requires random testing for controlled substances during employment.

ENGINEERING TECHNICIAN V

EDUCATION AND EXPERIENCE: Graduation from high school or equivalent education and six years of progressively responsible experience as described above; **OR** Associate's degree from an accredited college, university or technical school with major course work in engineering, engineering technology, math or related field and four years of progressively responsible experience as described above; **OR** Bachelor's degree from an accredited college or university with major course work in civil, mechanical, chemical or metallurgical engineering, mathematics or closely related field and two years of progressively responsible technical engineering experience involving coordinating technical engineering work projects, having functional supervision over technical engineering work, providing technical supervision to lower level engineering staff, determining work priorities, establishing work procedures and techniques, and establishing standards and controls; **OR** one year of experience as an Engineering Technician IV in Nevada State service; **OR** an equivalent combination of education and experience. *(See Special Notes and Requirements)*

ENTRY LEVEL KNOWLEDGE, SKILLS AND ABILITIES (required at time of application):
Working knowledge of: technical aspects of highway materials testing, construction, maintenance and related areas; surveying practices and real estate law court decisions and legal opinions related to assigned functions. **Ability to:** work as a team leader and coordinate the work of others; communicate effectively both orally and in writing involving a variety of technical and legal work related topics; perform complex technical tasks; evaluate technically correct engineering planning documents and inspection reports; logic and reasoning used to identify the strengths and weaknesses of alternative solutions, conclusions, or approaches to technical problems; *and all other knowledge, skills and abilities required at the lower levels.*

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MINIMUM QUALIFICATIONS (cont'd)

ENGINEERING TECHNICIAN V (cont'd)

FULL PERFORMANCE KNOWLEDGE, SKILLS AND ABILITIES (typically acquired on the job):
Knowledge of: regulations applicable to State personnel administration. **Ability to:** develop and implement efficient work plans and approaches; recommend changes to forms, procedures and methods to improve workflow; plan, direct, supervise and evaluate the work of assigned staff; oversee a variety of complex technical operations.

ENGINEERING TECHNICIAN IV

EDUCATION AND EXPERIENCE: Graduation from high school or equivalent education and five years of progressively responsible experience as described above; **OR** Associate's degree from an accredited college, university or technical school with major course work in engineering, engineering technology, math or related field and three years of progressively responsible experience as described above; **OR** Bachelor's degree from an accredited college or university with major course work in civil, mechanical, chemical or metallurgical engineering, mathematics or closely related field and one year of progressively responsible technical engineering work experience involving the coordination of technical engineering work projects, having technical responsibility over a specialized engineering function or program area, serving as leadworker to technical engineering staff, independently determining work priorities, implementing and/or developing work procedures, techniques, standards and controls; **OR** two years as an Engineering Technician III in Nevada State service; **OR** an equivalent combination of education and experience. *(See Special Notes and Requirements)*

ENTRY LEVEL KNOWLEDGE, SKILLS AND ABILITIES (required at time of application):
Working knowledge of: construction principles, practices and procedures. **Detailed knowledge of:** standard safety procedures when working in labs, on construction sites, and setting up protective barriers. **Skilled in:** communicating effectively both orally and in writing; dealing firmly and tactfully with others inside and outside the agency. **Ability to:** work independently and lead the work activities of others; read and interpret parcel maps, construction plans and specifications, engineering drawings, department policy and procedures, and federal/State regulations and guidelines; identify problems and recommend appropriate solutions; make field adjustments in response to unusual circumstances; make independent decisions related to specific work assignments; *and all other knowledge, skills and abilities required at the lower levels.*

FULL PERFORMANCE KNOWLEDGE, SKILLS AND ABILITIES (typically acquired on the job):
Ability to: conduct inspections of complex structures such as bridges, retaining wall, wells and drilled shafts.

ENGINEERING TECHNICIAN III

EDUCATION AND EXPERIENCE: Graduation from high school or equivalent education and three years of progressively responsible experience as described above; **OR** Associate's degree from an accredited college, university or technical school with major course work in engineering, engineering technology, math or related field and one year of technical engineering experience which involved a variety of related tasks, knowledge in a specialized engineering function or program area, and the application of detailed work procedures, techniques, standards and controls; **OR** one year of experience as an Engineering Technician II in Nevada State service; **OR** Bachelor's degree from an accredited college or university with major course work in civil, mechanical, chemical or metallurgical engineering,

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ENGINEERING TECHNICIAN III	**30**	**C**	**6.313**
ENGINEERING TECHNICIAN II	**27**	**C**	**6.328**
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MINIMUM QUALIFICATIONS (cont'd)

ENGINEERING TECHNICIAN III (cont'd)

EDUCATION AND EXPERIENCE (cont'd)
mathematics or closely related field; **OR** an equivalent combination of education and experience. *(See Special Notes and Requirements)*

ENTRY LEVEL KNOWLEDGE, SKILLS AND ABILITIES (required at time of application):
Working knowledge of: engineering maps and records; principles and practices of surveying; engineering drafting methods, conventional symbols and sources of information; materials, methods and techniques used in construction and inspection; testing and sampling procedures. **Skilled in:** operation and manipulation of civil engineering software; conducting tests and inspections of products, services, or processes to evaluate quality or performance. **Ability to:** read and comprehend legal and/or technical documents; read and understand references, guidelines and procedures related to technical documents; read and understand references, guidelines and procedures related to technical engineering work; organize material in a systematic way to optimize efficiency; work as part of a team; determine and use correct mathematical procedures to accomplish job assignments; work independently with minimal supervision; research and locate technical information from various records and resources, public records and web sites; operate, maintain and calibrate equipment and instruments applicable to the assignment; *and all other knowledge, skills and abilities required at the lower levels.*

FULL PERFORMANCE KNOWLEDGE, SKILLS AND ABILITIES (typically acquired on the job):
Working knowledge of: agency policies and procedures related to the assignment; standards, guidelines and criteria.

ENGINEERING TECHNICIAN II

EDUCATION AND EXPERIENCE: Graduation from high school or equivalent education and eighteen months of progressively responsible experience as described above; **OR** Associate's degree from an accredited college, university or technical school with major course work in engineering, engineering technology, math or related field; **OR** eighteen months as an Engineering Technician I in Nevada State service; **OR** an equivalent combination of education and experience. *(See Special Notes and Requirements)*

ENTRY LEVEL KNOWLEDGE, SKILLS AND ABILITIES (required at time of application):
Working knowledge of: safety procedures when working in labs, construction sites or other work sites; trigonometry, algebra and geometry used in engineering calculations; construction plans and specifications; application of software, computer aided drafting and/or calculation programs. **General knowledge of:** engineering drafting methods, conventional symbols and sources of information; principles and practices of surveying; engineering maps and records; **Skilled in:** operation and manipulation of drawing/drafting software. **Ability to:** work independently and follow through on routine assignments; perform technical engineering calculations applicable to typical tasks; establish and maintain documentation including records, manuals, and inspection reports; convey technical information to others; write technically correct inspection reports, field notes and other documents; apply general rules to specific problems to generate solutions; *and all other knowledge, skills and abilities required at the lower level.*

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ENGINEERING TECHNICIAN II	**27**	**C**	**6.328**
ENGINEERING TECHNICIAN I	**23**	**C**	**6.334**

MINIMUM QUALIFICATIONS (cont'd)

ENGINEERING TECHNICIAN II (cont'd)

FULL PERFORMANCE KNOWLEDGE, SKILLS AND ABILITIES (typically acquired on the job):
Skilled at: performing all relevant certified testing procedures. **Ability to:** understand and apply instructions from technical manuals to specific situations.

ENGINEERING TECHNICIAN I

EDUCATION AND EXPERIENCE: Graduation from high school or equivalent education; **OR** an equivalent combination of education and experience. *(See Special Notes and Requirements)*

ENTRY LEVEL KNOWLEDGE, SKILLS AND ABILITIES (required at time of application):
Working knowledge of: personal computers and related ancillary equipment. **General knowledge of:** mathematics including algebra, geometry and trigonometry. **Ability to:** communicate effectively both orally and in writing; work effectively with frequent interruptions; establish and maintain cooperative working relationships with co-workers and the public; follow oral and written instructions; convert mathematical data, quantities and measurements and calculate area, volume, length and proportion; read and understand policy and procedure; accurately copy, post or transcribe data; perform repetitive work according to prescribed procedures, sequence and pace; communicate effectively to obtain information, describe situations, and explain data; gather and compile data.

FULL PERFORMANCE KNOWLEDGE, SKILLS AND ABILITIES (typically acquired on the job)
Working knowledge of: methods of compiling technical data; records maintenance.

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ENGINEERING TECHNICIAN I	**23**	**C**	**6.334**

This class specification is used for classification, recruitment and examination purposes. It is not to be considered a substitute for work performance standards for positions assigned to this class.

	6.305	6.308	6.313	6.328	6.334
ESTABLISHED:	8/23/71	8/23/71	7/1/65	7/1/65	7/1/65
REVISED:					10/5/70
REVISED:			8/23/71	8/23/71	8/23/71
REVISED:				5/12/72	5/12/72
REVISED:	12/12/73				
REVISED:			4/26/74		
REVISED:			6/26/74		
REVISED:	7/1/74	7/1/74	7/1/74	7/1/74	
REVISED:		10/25/74	10/25/74	10/25/74	
REVISED:		4/4/75			
REVISED:				7/1/75	
REVISED:				2/26/76	
REVISED:	7/27/78-3				
REVISED:			9/11/78-3		
REVISED:		1/17/86	1/17/86		
REVISED:			4/14/87	4/14/87	
REVISED:			11/13/87-3	11/13/87-3	
REVISED:		8/19/88-3			
REVISED:		12/9/88-3			
REVISED:		2/21/89-12			
REVISED:	7/1/93P	7/1/93P	7/1/93P	7/1/93P	7/1/93P
	8/31/92PC	8/31/92PC	8/31/92PC	8/31/92PC	8/31/92PC
REVISED:	1/13/95UC	1/13/95UC	1/13/95UC	1/13/95UC	1/13/95UC
REVISED:			11/26/96UC		
REVISED:	7/27/00UC	7/27/00UC	7/27/00UC	7/27/00UC	7/27/00UC
REVISED	6/25/04PC	6/25/04PC	6/25/04PC	6/25/04PC	6/25/04PC